ABSTRACT OF THE DISCLOSURE

One aspect of the present invention relates to a system and method for controlling an EUV mask fabrication process using a scatterometer. The system includes an EUV mask fabrication system comprising a translucent substrate having one or more layers of reflective material formed thereon and a patterned photoresist layer as the uppermost layer, a mask inspection system operatively connected to the mask fabrication system for examining the layers as they are being etched and developed by the mask fabrication system and generating data related thereto, and an EUV mask fabrication control system coupled to the mask inspection system for receiving data from the inspection system in order to regulate the mask fabrication system to facilitate obtaining desired critical dimensions. The method involves monitoring the etching of the features, generating data related to the features, and relaying the data to a control system to optimize the EUV mask fabrication process.